

ABSTRACT

An optical mode noise averaging device including a multimode optical fiber and means for averaging a modal noise induced signal level variation of light propagating within the multimode optical fiber. The device may average modal noise induced signal level variations by cyclically varying an index of refraction of the multimode optical fiber over a select period of time, scrambling a light distribution within the multimode optical fiber, or both. The index of refraction of the multimode optical fiber may be cyclically varied by cyclically varying the temperature of the multimode optical fiber. Alternatively, the index for refraction may be varied or the light distribution within the multimode optical fiber may be scrambled by cyclically manipulating the multimode optical fiber.